(three patients). Stem cell sources included BM (four patients), PBPC (10 patients) and one cord blood transplant; related (6 patients) and unrelated (9 patients). Match grade was 6/6 for 13 transplants, 5/6 for one and 4/6 for the cord blood. GVHD prophylaxis was standard dose cyclosporine or tacrolimus and MMF, tapering after day 60. Median follow-up was seven months (range 1.5-30 months). There were no WBC engraftment failures. Neutrophil (ANC >500/dl) engraftment occurred at a median of 13 days (range 10-48 days). Three patients had grade I-II acute GVHD and one had chronic GVHD. One had grade III acute GVHD. Relapse occurred in three patients and they received DLI immunotherapy. Twelve patients survived to day 100 (80%). Four were alive at one year and four others who are still alive have not reached the one year mark. Four of the seven patients died with residual/relapsing disease (26%) and three died with treatment related toxicity (20%). Eight of 15 patients remain in follow-up. We conclude that the application of fludarabine, melphalan and alemtuzumab conditioning regimens has been successful in these high risk patients, with a low incidence of acute GVHD (27%), no engraftment failures and a low incidence (20%) of relapsed disease.

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INFECTION-RELATED MORTALITY AFTER ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION FROM HLA-MATCHED RELATED AND UNRELATED DONORS

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Infection is a major cause of transplant-related morbidity and mortality after allogeneic hematopoietic cell transplantation (HCT). To clarify the importance of management of infectious complications after allogeneic HCT, we retrospectively reviewed the medical records of 185 adult patients with hematologic malignancies who underwent allogeneic HCT at our center between 2000 and 2004. The diagnoses included acute myeloid leukemia or myelodysplastic syndrome (n = 87), chronic myelogenous leukemia (n = 20), acute lymphoblastic leukemia (n = 20), lymphoma (n = 55), and other hematologic malignancies (n = 3). The conditioning regimen for conventional stem cell transplantation (CST) was cyclophosphamide plus 12 Gy total body irradiation (TBI) (n = 60) or busulfan (n = 44), and that for reduced-intensity stem cell transplantation (RIST) was fludarabine plus busulfan with (n = 18) or without (n = 61) 4 Gy TBI. One-hundred-nine patients received G-CSF-mobilized peripheral blood stem cells from an HLA-matched relative (R-PBSCT; CST 48, RIST 61) and 76 patients received bone marrow from an HLA-matched unrelated volunteer (U-BMT; CST 58, RIST 18). The median age of the patients in the RIST group was older than that of the CST group (54 years vs 38 years). Neutrophil engraftment was faster in the R-PBSCT group than that in the U-BMT group (median; day 11 vs day 18) regardless of conditioning regimens. The cumulative incidences of grades II to IV acute graft-versus-host disease (GVHD) in the R-PBSCT and U-BMT groups were 46% and 49%, respectively. Within 1 year of transplant, 11 (10%) of the 109 patients who underwent R-PBPCT and 25 (33%) of the 76 patients who underwent U-BMT died of non-relapse causes. Non-relapse mortality within 1 year after CST and RIST were 23% and 15%, respectively. Among the 36 patients who died of non-relapse causes, 17 (47%) had grades III to IV acute GVHD and 13 (36%) had infectious complications. In conclusion, our study showed that U-BMT was associated with an increased risk of infection-related mortality. Future study should focus on better management of infectious complications and GVHD after HCT from an unrelated donor.

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ALLOGENEIC STEM CELL TRANSPLANTATION IN INFANTS. A SINGLE INSTITUTION EXPERIENCE

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Allogeneic stem cell transplantation (ASCT) is the treatment of choice for a variety of hematologic and non hematologic diseases. The ASCT have special implications when the patient involved is an infant. We analyzed the results of ASCT in infants in our institution. From 1997 to 2004 every infant who was treated with an ASCT in our hospital was included. A total of 6 infants were treated with an ASCT, 3 males and 3 females. One patient had acute lymphoblastic leukemia (ALL), one osteopetrosis (OP) who underwent 2 ASCT, one severe combined immunodeficiency syndrome (SCIDS) and 3 hemophagocytic lymphohistiocytosis (HL). In one patient the bone marrow was the source of stem cells, in 3 patients it was peripheral blood, and in 2 patients the stem cells were obtained from unrelated cord blood (one underwent 2 cord blood ASCT). Four patients had a related matched stem cell transplant, and two patients had an unrelated mismatched cord blood transplant with 5/6 matches. Reduced intensity conditioning regimen was used in 5 ASCT, myeloablative in the patient with HL done in 1997, and none in the patient with SCIDS. Only the 2 ASCT achieved in the infant with OP did not engraft. Graft versus host disease (GVHD) was present in 2 of the other 4 patients. Grade IV acute GVHD due to severe GI affectation in one infant with HL who underwent cord blood transplantation occurred and hepatic chronic GVHD in the HL patient transplanted in 1997 whose haematopoietic stem cell source was the bone marrow. Five patients are alive. The girl who did not engraft after two ASCT has osteopetrosis activity. Four patients: a girl with ALL, 2 boys with HL and a boy with SCIDS are disease free survivors without GVHD 25, 16, 101, and 53 months after ASCT. A girl with HL died due to sepsis and severe GI GVHD day +35 after transplant. In conclusion, we found in this small number of patients that 5 out of 6 patients are alive and 4 are disease free after a median of 48 months. We believe that haematopoietic stem cell transplantation, specially using reduced intensity conditioning regimen, can be safely used with good results in the pediatric population.

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CHIMERISM AND T CELL RECEPTOR REPERTOIRE ANALYSIS AFTER UNRELATED CORD BLOOD TRANSPLANTATION WITH A REDUCED-INTENSITY CONDITIONING REGIMEN FOLLOWING AUTOLOGOUS STEM CELL TRANSPLANTATION FOR MULTIPLE MYELOMA

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A 65-year-old Japanese male was diagnosed in October 2002 as having multiple myeloma with Bence Jones kappa type, clinical stage IIIA. His disease status reached partial remission after vincristine, Adriamycin and dexamethasone (VAD) therapy. Thereafter, he received tandem transplantation, consisting of high-dose chemotherapy with autologous stem cell transplantation (ASCT), followed by unrelated cord blood transplantation (CBT) with a reduced-intensity conditioning regimen, from which a graft-versus-host myeloma effect was anticipated. CBT with a reduced-intensity conditioning regimen was performed in August 2003. HLA mismatch between the patient and the CB donor was present at two loci (B and DR). The conditioning regimen consisted of fludarabine, busulfan and total body irradiation (TBI). A total nucleated CB cell dose of 2.45×10^7/kg body weight was infused on day 0. Graft-versus-host disease (GVHD) prophylaxis had been planned with cyclosporine A and short-term methotrexate. Neutrophil engraftment ($>0.5 \times 10^9$/L) was obtained on day 46. We analyzed in detail the chimerism status of PB subsets to predict graft rejection. Although his white blood cell count (WBC) was 0.2×10^9/L on day 27, showing nearly complete donor chimerism. He developed cytomegalovirus antigenemia, bacteremia, grade II acute GVHD involving skin and liver, varicella-zoster virus infection, septic shock, hemorrhagic cystitis due to adenovirus, and acute hepatitis B virus infection after CBT. We retrospectively analyzed T cell receptor (TCR) repertoire diversity and found that TCR repertoire diversity decreased continuously after CBT. Therefore, low TCR repertoire diversity appears to be associated with various infections due to immunodeficiency.